No. 619,143. Patented Feb. 7, 1899.

A. D. CUSHING.

LOCK.

(Application filed Aug. 30, 1897. Renewed Sept 2, 1898.)

(No Model.)

Fig. 1.

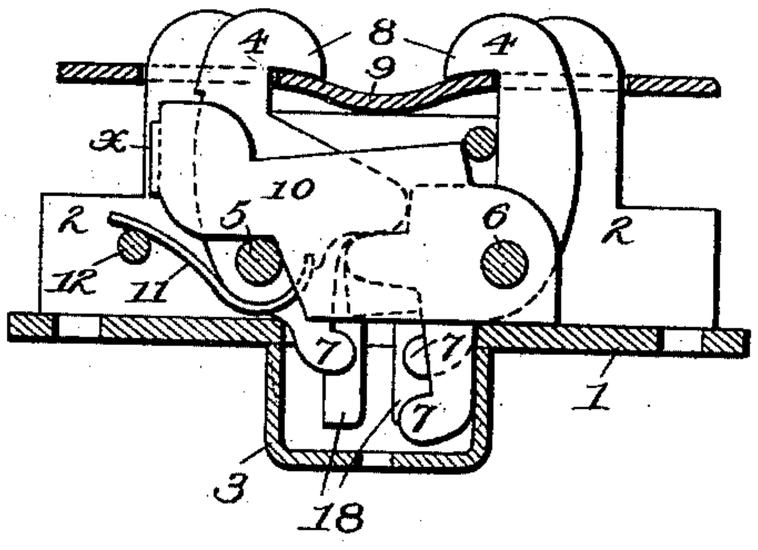


Fig. 2.

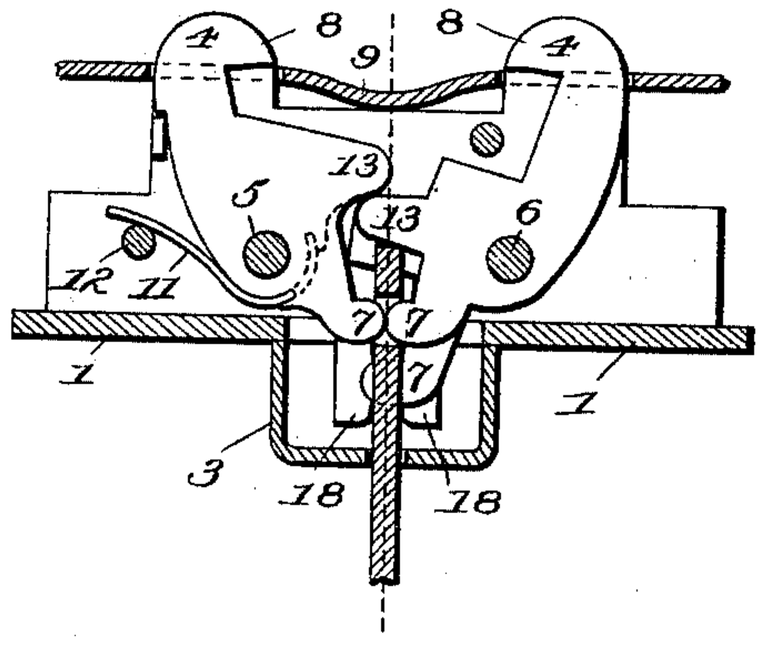
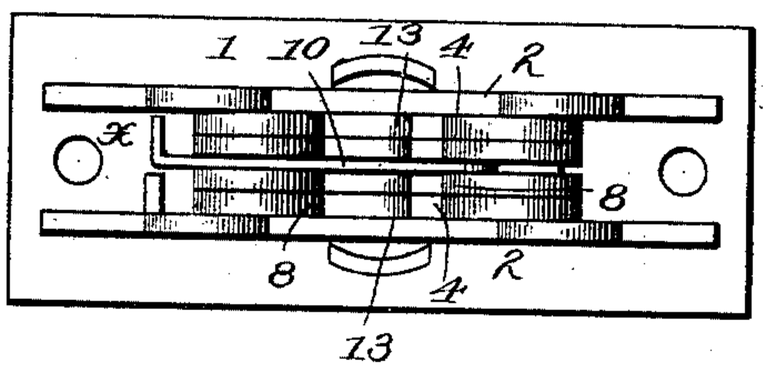


Fig. 3.



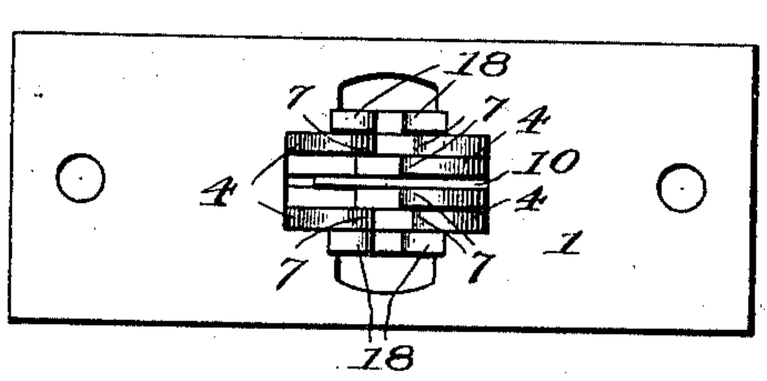
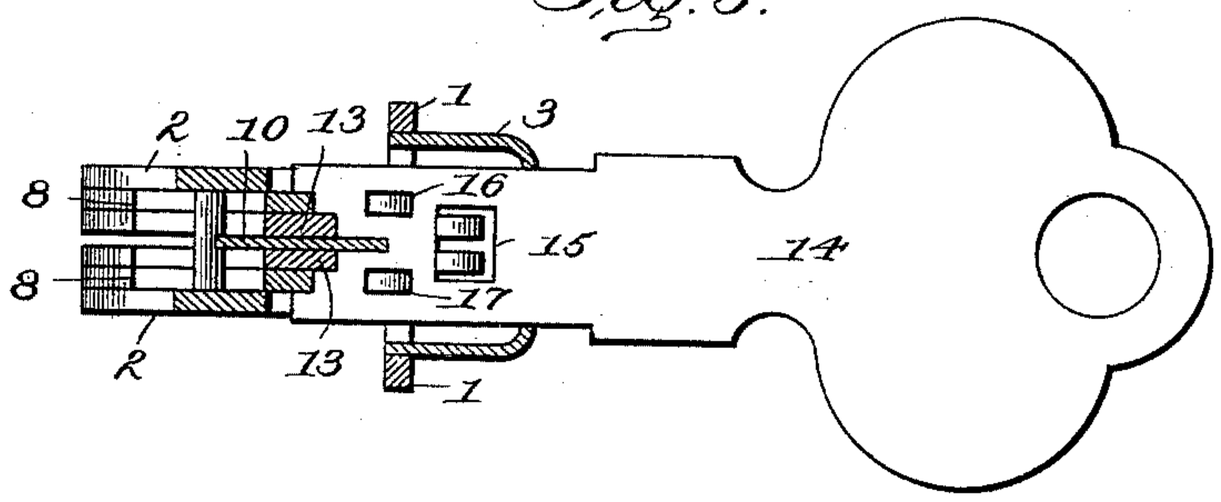


Fig. 5.



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LOCK.

SPECIFICATION forming part of Letters Patent No. 619,143, dated February 7, 1899.

Application filed August 30, 1897. Renewed September 2, 1898. Serial No. 690,147. (No model.)

To all whom it may concern:

Be it known that I, ALFRED DARLING CUSHING, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in push-key locks for boxes, drawers, and the like. The present lock has been devised especially for use on mail-boxes, whereby the least possible time is required for opening the boxes and withdrawing the mail therefrom.

The invention involves the combination of one or more pivoted locking-jaws adapted to be thrown apart for the purpose of unlocking, springs for normally holding the jaws in their locking position, and a suitable key for operating the jaws.

It also involves the combination of a push-key having slots or notches in its stem and swinging locking-jaws having projections extending across the key-slot at all times and projections extending into the path of the key when the jaws are open.

It also involves certain other combinations and arrangements of parts, as will be fully set forth hereinafter.

In the drawings forming a part of this specification I have illustrated as a preferred form of my invention a lock having four pairs of locking-jaws, though it is obvious that only a single pair may be employed if it is so desired.

Figure 1 is a sectional view taken through the face-plate and keeper of the lock, showing one pair of locking-jaws and the guide-plate in elevation, the jaws being in closed or locked position. Fig. 2 is a similar view of the lock, the key being in operative position and the jaws open. Fig. 3 is a back elevation of the lock. Fig. 4 is a front elevation of the same with the boss removed. Fig. 5 is a cross-section through the lock, showing a suitable key in elevation.

The operating parts of my lock are inclosed in a casing made up of the face-plate 1 and two interior side plates 2 2, secured thereto, and the hollow boss or projecting portion 3, also suitably secured to the face-plate or made integral therewith. The boss is suitably slotted for the admission of the key. The locking portion of the lock, as illustrated, consists of a series of pairs of locking-jaws, each pair independently operated, but the members of the separate pairs being operated simultaneously. I have illustrated in the present case four pairs, though it is evident that I may use any number. These are shown at 4 4. The separate members of each pair are respectively pivoted to shafts 5 and 6, passing through the side plates 2 2 of the casing, on which shafts they are adapted to vibrate. Each of these locking-jaws has a projection 7 at its lower end, adapted to swing into the path of the key when the lock is operated, and a hook-catch 8 at its upper ends. The engaging faces of the hook-catches 8 are curved on an arc having the axes of the shafts 5 and 6 for their centers and interlock with a keeper 9, having corresponding curves, as clearly shown. The object of this form of hook and keeper is to insure the complete closure of the jaws when the door on which the lock is mounted is closed. With merely straight or angular hooks it is possible for the hooks to engage the keeper sufficiently to hold the door closed without fully swinging into proper locked position, in which case the projections 7 on the outer ends of the jaws obstruct the entrance of the key to the lock and cause delays. The interior pair of locking-jaws and their complements are respectively alike and the outer pairs and their complements are respectively alike. These are made so for the purpose of having the lock symmetrical within and in order that a symmetrical key may be employed—that is, a key that may be inserted into the lock with either face up. This construction, however, is not essential and I do not wish to confine myself to it. 10 is a guide-plate pivoted to the shaft 6 and inserted between the interior pairs of locking-jaws, serving as a guide for the key. A shoulder or lip x is formed on the guide-plate and upon one or both of the side plates, serving as a stop to limit the movement of the tumblers or locking-jaws and prevent forcing said jaws beyond the elastic limit of their returning-springs, to the injury of said springs. Each jaw or its complement is provided with a small

spring 11, the free end of which rests against the fixed rod 12 and serves to hold the separate pair of jaws normally in closed or locked position.

The inner faces of the separate members of the respective pairs of locking-jaws have projections 13 and cut-away portions, as shown, the said projections of the one fitting the cut-away portions of the other and extending into the path of the key. By this construction the operation of the spring 11 on one jaw has the effect of keeping both members of the pair normally closed, and the operation of the key on the other jaw has the effect of throwing open simultaneously both members of a pair.

14 is the key, so shaped at its end as to fit the interior conformation of the jaws and provided with slots 15 16 17, into which the lower projecting ends 7 of the locking-jaws fit when the jaws are thrown open.

The operation of my lock is as follows: The gripping-jaws are kept normally closed by means of the springs 11, and to throw them open it is necessary to insert a key through the slot in the boss 3. Forward pressure is applied, and the end of the key operating against the projections 13 the four pairs of jaws are thrown apart simultaneously. By releasing the pressure the jaws fall back again automatically to their closed positions. In inserting the key the guide-plate 10 fits a corresponding slot in the key and guides the key the remainder of the distance. As the jaws are moved by the pressure of the key the lower projecting portions 7 swing around and project into the slots 15, 16, and 17 of the key, passing partially or entirely through the same, and thereby prevent the use of an ordinary flat key for surreptitiously opening the lock.

18 18 are lugs or projections formed integral with the side plates of the casing and project through the face-plate into the hollow boss to form guides or ways for the key. These guides prevent the key from being forced into the lock in such manner as to jam and injure the tumblers of the lock.

Having now described my invention, what I claim is—

1. A lock embracing the combination of a push-key having slots or notches in its stem, a pair of swinging jaws having projections interlocking with each other and extending across the path of the key for opening the jaws as the key is inserted and for closing the pair of jaws by a single spring, and having projections which extend into the path of the key when the jaws are open, and a stop to limit the movement of the jaws, substantially as described.

2. In a lock, the combination of a push-key having slots or notches in its stem and a series of pairs of swinging jaws having projections extending across the path of the key for opening the jaws as the key is inserted and projections which extend into the path of the key when the jaws are open, and stops to limit the movement of the jaws, substantially as described.

3. In a lock, the combination with a casing made up of a face-plate, hollow boss thereon and two side plates secured thereto having projections extending into the boss to form key-guide hooks or catches at their upper ends, projections at their lower ends extending down into the hollow boss, and into the path of the key when the jaws are operated, intermediate projections extending into the path of the key, and an operating-key provided with slots or notches in its stem, substantially as described.

4. In a lock, the combination with a casing made up of a face-plate, hollow boss thereon and two side plates secured thereto, of a keeper having a curved hook-seat, locking-jaws having curved hooks or catches at their upper ends, projections at their lower ends extending down into the hollow boss and into the path of the key when the jaws are operated, intermediate projections extending into the path of the key, and an operating-key provided with slots or notches in its stem, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED DARLING CUSHING.

Witnesses:

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